

REMARKS

Applicant notes with appreciation the interview between Examiners Jackson, Ip, and Scott and the undersigned on July 8, 2003.

The claims have been amended to define better the subject matter that applicant regards as the invention.

In particular, applicant has amended the claims to follow Figure 3 of the application. (As applicant explained during the interview, however, the independent claims do not recite the step 40 of the seventh line of Figure 3, performed by the acousto-optic modulator, since the invention can be performed without this particular step.)

For example, the table below illustrates how the body of independent claim 40 reads on corresponding features from Figure 3:

<u>BODY OF CLAIM 40 (EMPHASIS ADDED)</u>	<u>CORRESPONDING SPECIFIC FEATURE IN THE SPECIFIC EMBODIMENT OF FIGURE 3</u>
"pulsing the pulsed laser system by <u>triggering</u>	<u>Top line:</u> triggering is performed by laser trigger pulses 30; or <u>Fourth line:</u> triggering is performed by laser trigger pulses 30
storage of energy by the laser source for a <u>fixed, predetermined period of time</u>	<u>Second line:</u> the fixed, predetermined period of time is the duration of RF Q-switch waveform 32; or <u>Fifth line:</u> the fixed, predetermined period of time is the duration of RF Q-switch waveform 32.
prior to each of a plurality of <u>emission periods</u> regardless of the time interval between the at least two successive transmissions of pulses onto the workpiece, allowing energy to be emitted from the laser source during each <u>emission period</u> ,	<u>Third line:</u> the emission period is the period during which laser pulses 34 are emitted; or <u>Sixth line:</u> the emission period is the period during which laser pulses 36 and secondary and continuous wave emissions 38 are emitted.

and	
causing the laser source to process the target material on the workpiece, with the selected time interval between the at least two <u>successive transmissions of pulses onto the workpiece</u> ,	<u>Third line:</u> the successive transmissions of pulses onto the workpiece are the transmissions of laser pulses 34; or <u>Sixth line or eighth line:</u> the successive transmissions of pulses onto the workpiece are the transmissions of laser pulses 36
while the <u>pre-selected pulse shape remains as preset</u> regardless of the time interval, without selection of the time interval affecting the pulse shape.”	The pre-selected pulse shape of pulses 34 in the third line of Figure 3 is the same as that of pulses 36 in the sixth and eighth lines of Figure 3.

Applicants wish to emphasize that details from Figure 3 have been included in the above table solely for purposes of explaining how the broadly worded claim language is supported by the one particular embodiment shown in Figure 3. Applicant does not intend to suggest by this that the claim language should be construed as being limited to the specific corresponding features in Figure 3. In other words, the “triggering” may be performed by a mechanism substantially different from the laser trigger pulses 30 shown in Figure 3; the “storage of energy by the laser source for a fixed, predetermined period of time” may correspond to a mechanism substantially different from Q-switch waveforms 32; “allowing energy to be emitted from the laser source during each emission period” may result in output substantially different from laser pulses 34, or laser pulses 36 combined with secondary output 38; etc.

During the interview, Examiner Ip suggested that the processing of the target material be recited as a positive method step. Accordingly, the above-quoted body of claim 40 has been amended to recite “causing the laser source to process the target material on the workpiece” (emphasis added).

Furthermore, the claims have been amended to recite in the preamble a “processor-controlled” pulsed laser system. The processor is no longer recited in the body of the claim.

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During the interview, Examiner Ip agreed that it would not be necessary to include the processor in the drawings if the processor is recited in this manner only in the preamble.

During the interview, the undersigned explained why the independent claims distinguish over Emmons, Jr., for the reasons set forth in applicant's reply dated June 13, 2003. Accordingly, the Examiner's Interview Summary states that "[a]pplicant clarify that the pulse rate independence of the pulse shape of the invention is not taught or suggested by Emmons, Jr. et al."

Applicant asks that all claims be examined in view of the amendment to the claims.

Please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: July 28, 2003

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JP62086851A2: LASER TRIMMING APPARATUS

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Country: **JP Japan**

Kind:

Inventor(s): **KUNIHIRA MAMORU**

Applicant(s): **NEC CORP**
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Issued/Filed Dates: **April 21, 1987 / Oct. 14, 1985**

Application Number: **JP1985000228100**

IPC Class: **H01L 27/01; H01C 17/22;**

Abstract: **Purpose:** To prevent the insulation of an element to be trimmed from deteriorating by removing a laser light of a laser of power more than required by a shutter, and then operating a pulse light of normal power onto a substrate to trim it.
Constitution: A laser trimming apparatus has a laser oscillator 1, a shutter 4 for shielding the pulse light 2 of a laser provided in the midway of a laser light passage to a beam positioner, a shutter controller 5 for telescoping the shutter 4 on the pulse optical axis of the laser, and a laser controller 6. When trimming, the shutter 4 mounted in the controller 5 is controlled by a control signal from the controller 6, the pulse light 2 of the laser from the oscillator 1 is shielded at the order counted several pulses from the initial pulse light from the start of emitting to a substrate 7 first in the state that the shutter 4 is closed, the shutter 4 is opened by a control signal from the controller 6, and the light 2 is emitted onto the substrate 7 for trimming.
 COPYRIGHT: (C)1987,JPO&Japio

Other Abstract Info: none

Foreign References: (No patents reference this one)



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